

REMARKS

Request for Reconsideration

Applicant has carefully considered the matters raised by the Examiner in the outstanding Office Action but remains of the position that patentable subject matter is present. Applicant respectfully requests reconsideration of the Examiner's position based on the amendments to the specification, the amendments to the claims, the attached Declaration of Mr. Sasa and the following remarks.

Claims Status

Claims 1, 4, 6 and 9-12 are pending in this Application.

Claim 1 has been amended herein to recite that the active energy ray curable composition comprises an oxetane compound and an initiator. Support for this amendment can be found on page 6, third and fourth paragraph.

Because of the amendments made to Claim 1, Claim 6 has, likewise, been amended. Respectfully, no new matter has been added herein.

Specification Amendments

Table 3 on page 72 of the Application has been amended herein to correct obvious typographical errors.

Prior Art Rejection

In the Final Office Action dated August 17, 2006, the Examiner rejected all claims based primarily on the reference EP 118748 and the Takai Publication. In response to that rejection, Applicant had submitted data to show the dramatic difference between a compound of formulas (2) or (3) having a methyl group at the base of each epoxy group compared to the teachings of EP '748 or Takai. In the Advisory Action, the Examiner criticized the data as using subjective criteria rather than objective criteria.

In response to these criticisms, Applicant has performed additional tests and the same are submitted herewith in a Declaration of Mr. Sasa.

Applicant wishes to address some of these criticisms made by the Examiner in the Advisory Action, and to discuss the current Declaration of Mr. Sasa.

Safety

The Examiner questioned the meaning of the term "rubefaction" and "bulla". Rubefaction means a reddening of the skin. Bulla means a welt or a blister is formed. These are the standard, or conventional, tests and terms used in the industry for measuring the safety of an ink. These are visual observations and, thus, there are no numerical criteria associated with it. It can be seen that the Invention was better than the Prior Art.

Stability

Stability is a measurement taken over a one month period. The composition was tested when it was first made and then one month later after storage at 25°C. Each composition was subject to a viscosity test at the beginning of storage and, if no precipitation appeared, at the end of storage. All of the inventive samples showed no precipitation and less than a 10% viscosity change between prestorage and poststorage. In contrast, the Prior Art showed precipitation, obviously, unacceptable for use as an ink composition.

Curability

The test for curability was a measurement of the amount of energy that was necessary to fully cure the material. In the test results that are reported in the attached Declaration of Mr. Sasa, the curability was measured by first applying an ink composition to a steel plate, curing by Curing Method 1 as recited on page 74 of the Application, and then applying an aluminum plate on top of the composition in order to see if it was cured. The point at which the amount of energy applied to the composition was enough to prevent the ink from sticking to the aluminum plate was the number used in the Table to determine curability. In other words, if the ink was still able to adhere to the aluminum plate, then it was not cured. As can be seen, the Invention used less than 10 times the amount of energy of the Prior Art.

Film Strength

Film strength was measured with a scratch strength tester called a HEIDON-18. In this test, a needle was drawn across a cured surface and the weight applied to the needle was measured. When the needle broke the surface and made contact with the steel plate, the surface was deemed to have been scratched. As can be seen in Table A, the Invention was four times stronger than the Prior Art.

Solvent Resistance

For solvent resistance, a cured sample of ink measuring 1 cm by 1 cm was put into ethylene alcohol at a temperature of 50° for 10 seconds. The sample was then removed from the ethylene alcohol and measured for changes in length and width. As can be seen in Table A, the Invention showed no change while the Prior Art swelled by about 15% in both width and length.

Water Resistance

For water resistance, a different sample of cured ink measuring 1 cm by 1 cm was inserted into 50°C water for 10 seconds. The sample is then removed and measured for changes in length and width. As can be seen in Table A, the Invention showed no change while the Prior Art showed a 15% increase in both width and length.

Respectfully, outside of the safety measurement which looks for redness or blisters on the skin, each one of the tests is objective in its criteria and looks specifically for numerical differences.

As can be seen by the data in Table A, attached to Mr. Sasa's Declaration, the present Invention has a higher rating than the epoxies taught in EP '748.

Furthermore, Applicant has provided ten different epoxies that fall within formula (2) and (3) of the present Invention. Specifically, Applicant has provided seven compounds that fall within formula (2) and three compounds that fall within formula (3). Respectfully, Applicant has provided enough data with respect to the species of the epoxy compounds that fall within formulas (2) and (3) to clearly demonstrate that Applicant's claim of Invention works throughout its claimed range.

The Examiner had criticized using different curing methods for the compositions. In the attached Declaration of Mr. Sasa, used one curing method, the Curing Method 1 as recited on page 74 of the Application.

Finally, criticism has been made that independent Claim 1 is not commensurate in scope with the test results specifically because it did not contain an oxetane compound. Claim 1 has been amended herein to recite that the composition contains an oxetane compound and an initiator.

In view of the foregoing, it is respectfully submitted that the Application is in condition for allowance and such action is respectfully requested.

Request for One-Month Extension of Time

A one month extension of time is hereby requested and the appropriate government fee is paid concurrently herewith.

Should any further fees or extensions of time be necessary in order maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit Account # 02-2275.

Respectfully submitted,

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Encl: Executed Declaration of Mr. Sasa

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